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1. *What are the top interoperability challenges that you have faced?*
2. *What solutions have you identified to overcome these challenges in order to share clinical information with other organizations/physicians in a timely fashion?*

Health IT Joint Committee's Interoperability Experience Task Force Hearing

Good Morning.

I will be sharing perspectives from my experience as a public health official and family physician within Denver Health, a vertically integrated safety-net health care institution providing services and care to nearly 30% of Denver's population. *(In the interest of brevity, I will assume that most of you are familiar with public health and community health centers. If not please visit www.naccho.org and/or www.bphc.hrsa.gov).*

My interoperability comments are tied to the Federal Health IT Strategic Plan and will focus on two separate aspects of our health ecosystem:

(**Slide 2**) Getting to a healthy state requires more than just visits to a care provider. Patients need easy referral and access to community-based resources to assist them. Social determinants of health influence the outcomes of patients. Clinicians are challenged to adequately address these factors within the context of clinical care.

(**Slide 3**) Public health officials need to understand their communities through health assessments. The granularity of nationally conducted surveys *(e.g., Behavioral Risk Factor Surveillance System)* in my county is limited. Sub-county analyses to understand disparities and where to conduct community-based interventions are impossible.

Interoperability is essential in both situations*. A PCP wants to efficiently communicate with community-based resources to assure a smooth transition between provider and resources needed by the patient. A public health official wants to use available electronic health record (EHR) data to make informed assessments that define problems and suggest equitable solutions and interventions.*

Community-based Resources

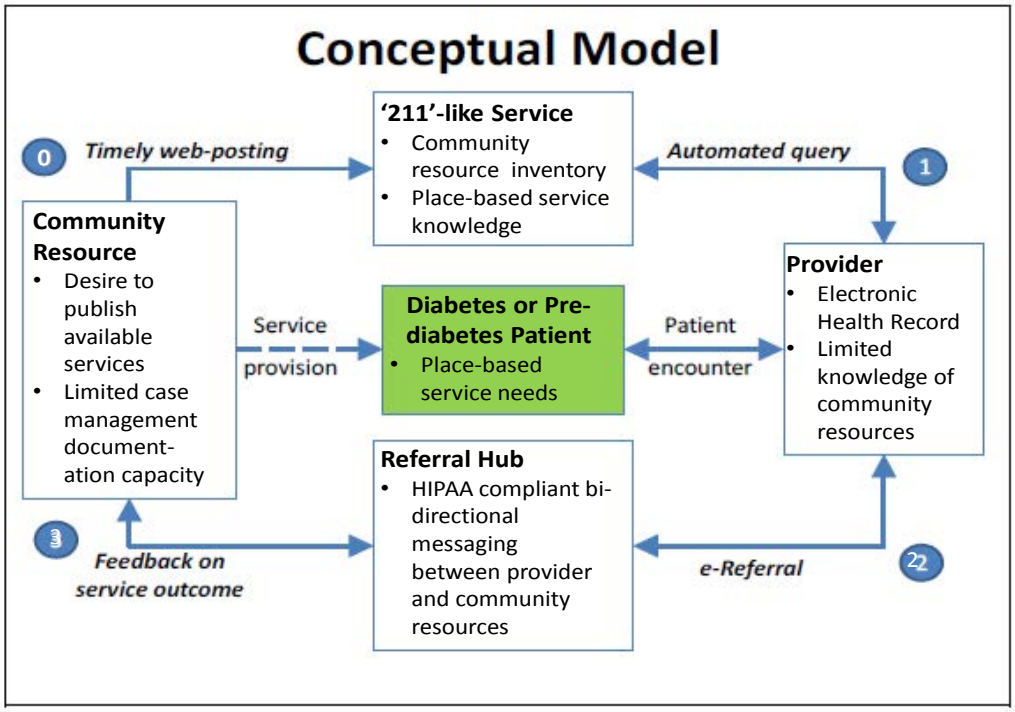
As a family physician, I remember a Vietnamese speaking patient who lived near my clinic. She had pre-diabetes and needed a referral to a diabetes prevention program (DPP) and a food bank. Where to find culturally appropriate services for her? Would I ever hear about what happened at the community resource – did she connect or was it a failure? Information flow between a community resource and medical provider is almost non-existent. Having spent $30 billion for EHR adoption and implementation, we must do better.

(**Slide 4**) The figure describes a model where interoperability is represented by solid blue arrows between entities. All these messaging services should be automated. We've been doing something similar between a provider's EHR and the Colorado Quitline. With others around the country, the North

American Quitline Consortium has proposed HL7 standards for use by virtually all Quitline providers using c-CDA document to make referrals and receive feedback. Quitlines typically have robust informatics infrastructure to support such referrals. What happens with the local YMCA DPP class or other resources (e.g., food banks) without capacity to support HL7 and HIPAA complaint messages?

A provider and patient (**green box**) need to conduct an automated query for what culturally appropriate, community based resources exist (**circle 1**). Real-time results should allow the provider to present options to the patient; a HIPAA compliant e-Referral would then be sent to a secure referral hub supporting communication with many community resources (circle 2), where information technology is limited.

Just like the Quitline, the goal is to have feedback return directly to the chart through a HISP using Direct-mediated messaging. Key problems are poorly developed taxonomies for communicating about social determinants (e.g., what is the SNOMED or ICD-10 code for food scarcity?) or community-based services and the absence of a shared referral hub for non-EHR enabled service providers. These represent both semantic and structural barriers to interoperability.



Community Health Assessments

On the public health side, EHRs represent an enormous opportunity. Here the challenge is finding a common data model to which EHR data may be converted. In Colorado, we have been following a distributed data access framework developed by the FDA (Mini-sentinel) and PCORI (PCORnet) to aggregate data.

(**Slide 5**) In the figure, you see rates of obesity by neighborhood in Denver County gathered from EHR data for nearly 1/2 of all children and youth. Several care providers have decided to share their data. Similar maps have been developed for depression, cardiovascular disease, tobacco use and diabetes. These maps support a learning health system, where we engage with policy-makers, community organizations and the general public. These analyses focus discussions and identify disparities, otherwise unmeasurable from national or local surveys. EHRs have immense power to support population health monitoring and inform community- or clinic-based policy decisions. The interoperability challenge for aggregating a standard representation of EHR data is present in thousands of jurisdictions and health department across the country. These again represent semantic and structural interoperability barriers.

As an ex-HIT Policy Committee member, thank you for your leadership and efforts to create value from our national investment. I appreciate this opportunity to highlight some interoperability challenges for clinicians, communities and public health entities. I look forward to our conversation.